CLAIMS

1. A read-write head (1) with
- a first block (11) and
- a carrier (14) connected movably with the first block (11) carrying a read-write element (2), whereby said carrier (14) is connected resiliently movable with said block (11) by at least one leaf spring (12, 13), and
- at least one electromagnetic actuator device with at least one electromagnetic element (8, 9) to create magnetic forces which are acting upon the carrier (14).

2. Read-write head as claimed in one of the preceding claims, wherein the electromagnetic actuator device comprises at least one actuator element attached or integrated to the carrier (14), on which forces are exertable by means of electromagnetic fields.

3. Read-write head as claimed in one of the preceding claims, wherein the electromagnetic element (8, 9) includes a coil (22, 26) fabricated in thin film technology or by electroplating, respectively.

4. Read-write head as claimed in one of the preceding claims, wherein the electromagnetic actuator device (8, 9) includes at least one yoke (19, 23).

5. Read-write head as claimed in claim 4, wherein the electromagnetic element of the actuator device includes a coil about one pole of one yoke.

6. Read-write head as claimed in claim 5 or 6, wherein the yoke comprises a leg, which connects two or more poles of a yoke, which are surrounded by coils.

7. Read-write head as claimed in one of the preceding claims, wherein the electromagnetic actuator device (9, 10) includes at least one magnetizable element.

8. Read-write head as claimed in claim 7, wherein the magnetizable element includes softmagnetic material.

9. Read-write head as claimed in claims 7 or 8, wherein the magnetizable element includes a flux closing yoke.

10. Read-write head as claimed in one of the preceding claims, wherein the electromagnetic actuator device (8, 9) includes at least one permanently magnetizable element.

11. Read-write head as claimed in one of the preceding claims, comprising two electromagnetic actuator devices (8, 9), each of which comprising an actuator element attached to or integrated in the carrier (14), upon which forces caused by electromagnetic field are exertable, whereby said read-write element viewed in reading direction is located between the actuator elements (8, 9).

12. Read-write head as claimed in claim 11, wherein the read-write element, viewed in reading direction, is located perpendicularly offset to a plane through the actuator elements.

13. Read-write head as claimed in one of the preceding claims, wherein a first block (11) is connected with a second block (7), whereby the magnetic forces created by the electromagnetic actuator device (8,9) are acting between the carrier (14) and the second block (7).

14. Read-write head as claimed in claim 13
- wherein said actuator device includes an electromagnetic element connected with the second block, as well as a magnetizable or permanently magnetized element connected to the carrier (14), or
- wherein said actuator device includes an electromagnetic element connected with said carrier, as well as a magnetizable or permanently magnetized element.

15. Read-write head as claimed in claim 13 or 14, wherein said electromagnetic actuator device comprises electromagnetic elements which are located on said second block as well as on said carrier.

16. Read-write head as claimed in claims 14 through 16, wherein the carrier (14) is supported resiliently by said second block.

17. Read-write head as claimed in one of the preceding claims, characterized by three electromagnetic actuator devices.

18. Read-write head as claimed in one of the preceding claims, wherein said read-write head is shaped as a slider

19. Read-write head as claimed in claim 19, wherein at least one area of the glide surface of said slider is coated wit diamond like carbon (DLC).

20. Read-write head as claimed in one of the preceding claims, wherein said carrier (14) exhibits a smaller thickness than said first block.

21. Read-write head as claimed in one of the preceding claims, wherein said read-write element includes an electromagnetic read-write element or a magneto-resistive electromagnetic read-write element or an optical or magneto-optical read-write element or a combination of at least two of these elements.

22. Method for data recording on or data retrieval from a data storage medium, wherein

- data are written on at least one predetermined track on the data carrier or data are read along a track arranged on said data storage medium by means of a read-write element of a read-write head, in particular according to one of the claims 1 through 22, which is attached to a suspension, wherein said read-write element is arranged on a resiliently supported carrier of said read-write head, wherein the track following of the read-write element is readjusted by at least one electromagnetic actuator device of the read-write head.

23. Method as claimed in claim 22, wherein an adjustment of the distance of the read-write element to the surface of the data carrier is carried out.

24. Method as claimed in claims 22 or 23, wherein the read-write element is tilted along an axis essentially parallel to the read write direction.

25. Method as claimed in one of the claims 22 through 24, wherein track following is readjusted laterally along the surface.

26. Method as claimed in one of the claims 22 through 25, wherein at least one electromagnetic actuator device of said read-write head is activated by exciting a coil.

27. Method for fabricating a read-write head, in particular according to one of the claims 1 through 21, comprising the steps:
- depositing at least one leaf spring on a first side of a first block (11) which connects a section of said block with another section of the block,
- separating said first section to form a carrier for a read-write element,
- applying a read-rite element (2) onto said carrier,
- arranging an electromagnetic element either on a second block or on the carrier,
- arranging a magnetizable element or a permanently magnetized element or an electromagnetic element either on the carrier or on the second block,
- Joining the first block to the second block.

28. The method as claimed in claim 27, wherein the arrangement of a magnetizable element includes the deposition of a coil, in particular one with a dual layer coil arrangement.

29. The method as claimed in claims 27 or 28, wherein arranging an electromagnetic element on a second block or on a carrier includes electroplating of the structures of an electromagnetic element.

30. The method as claimed in claim 30, wherein the electroplating of the structures of an electromagnetic element includes the steps:
- depositing a conductive seed layer,
- coating with a photoresist layer,
- photolithographic patterning of said photoresist layer according to the structures of the electromagnetic element,
- electroplating of a conductive layer, and
- stripping of said photoresist layer.

31. The method as claimed in one of claims 27 through 30, wherein arranging of an electromagnetic element on said second block or on said carrier includes the deposition of a yoke.

32. The method as claimed in one of claims 27 through 31, wherein the arrangement of a magnetizable element or a permanently magnetized element or an electromagnetic element either on the carrier or on the second block includes the deposition of a yoke.

33. The method as claimed in claim 31 or 32, wherein said yoke is deposited by electroplating.

34. The method as claimed in one of claims 27 through 33, wherein the first side of the first block exhibits a sacrificial layer, characterized in that the deposition

of a leaf spring on the first block includes
- the photolithographic patterning of the sacrificial layer, wherein the sacrificial layer is removed in the anchoring areas of the leaf spring,
- an all over deposition of a layer of polycrystalline silicon,
- a photolithographic patterning of the polycrystalline silicon layer, and
- the removal of the sacrificial layer.

35. The method as claimed in one of the claims 27 through 34, wherein the first and the second block are joined in a way so that the leaf spring is facing the second block.

36. The method as claimed in one of the claims 27 through 35, wherein said first and said second block are joined together with a spacer.

37. The method as claimed in one of the claims 27 through 36, characterized by the step of removing material from said first section of said first block on that side which is opposite to the side on which said first and said second block are being joined.

38. The method as claimed in one of the claims 27 through 37, wherein the step for joining of the first block to the second block includes the step for joining a first wafer with a second wafer.